Thesis/
Reports
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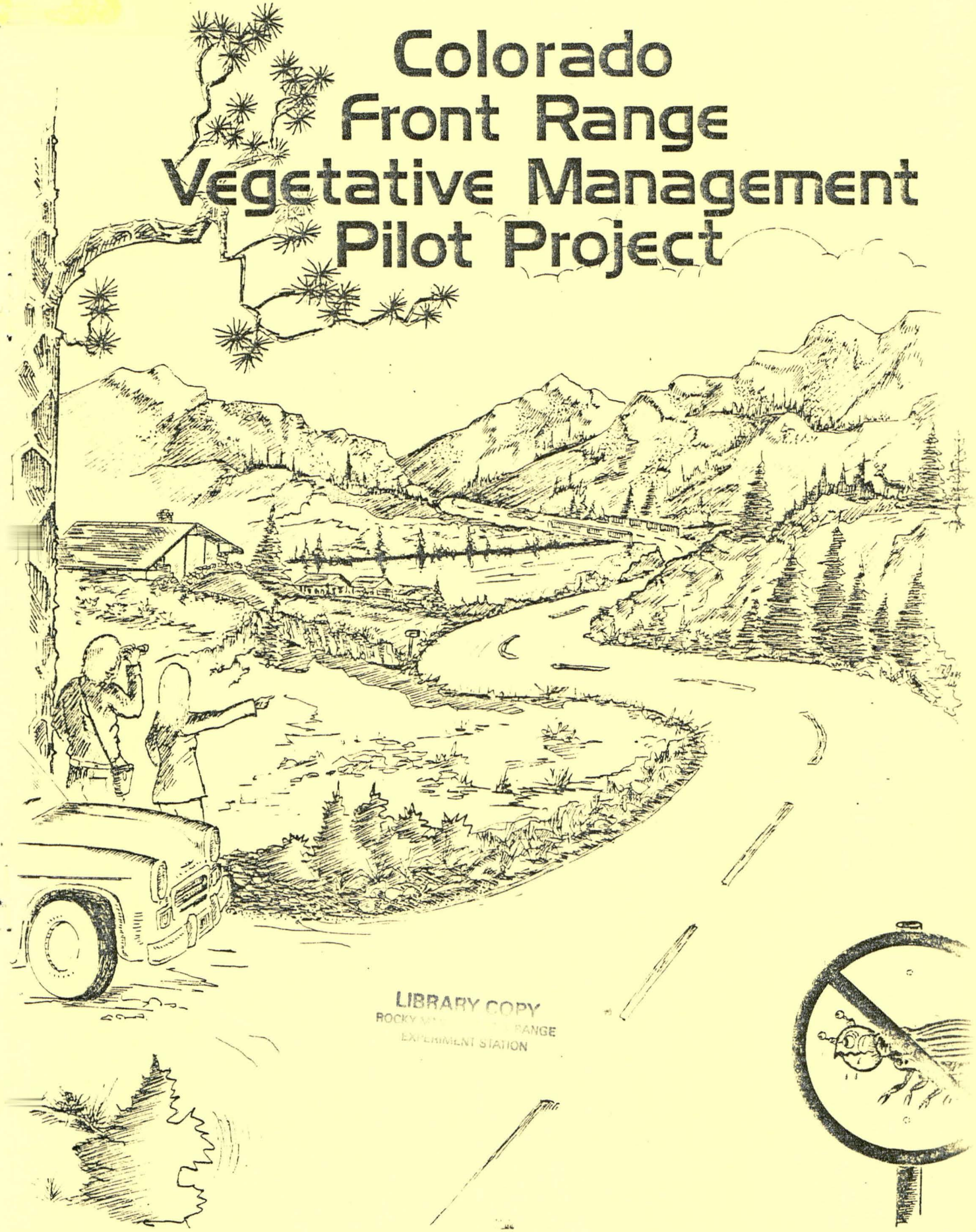
COLORADO FRONT RANGE VEGETATIVE MANAGEMENT PILOT PROJECT BENEFIT COST ANALYSIS

United States Forest Service

Benefit Cost Analysis for the

Colorado Front Range Vegetative Management Pilot Project



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BENEFIT/COST ANALYSIS
PILOT PROJECT FOR VEGETATION MANAGEMENT
COLORADO FRONT RANGE

RESULTS

The three alternatives and the respective benefit/cost ratio (BCR), net present worth (NPW) and internal rate of return (IRR) at a 10% interest rate are:

Economic Parameter	Custodial Management	Current Direction	Proposed Project
BCR	.22	1.41	1.89
NPW ($M)	-258.48	304.55	3,098.99
IRR	0.0	28.66	31.23

With the assumptions utilized, the proposed project is the most economically efficient alternative.

Benefit/cost ratios by RPA systems affected in the three alternatives are:

RPA System	Custodial Management	Current Direction	Proposed Project
Recreation	0.68	0.90	2.17
Wildlife	2.94	3.04	5.59
Timber	0.11	0.71	0.25
Land and Water	0	1.50	1.64
Human and Community Development	.25	1.56	6.72

These ratios reflect the change in management direction the region has taken to enhance recreation, wildlife and the scenic beauty of the Front Range.

METHODS

A ten year planning horizon was utilized in this analysis to determine the relative economic worthiness of each alternative. Regional benefit/cost guidelines developed for mountain pine beetle suppression projects were incorporated. [1] These guidelines attempt to show how to minimize potential economic losses that can occur to society through a destructive insect. The methods appear applicable to this project.

The INVEST III program was used to calculate the economic worthiness. Input into the program is shown both by RPA systems and budget line item. Benefits and costs are summarized by RPA system.

Custodial and current management alternatives reflect the decisions made in FY 76 to treat the mountain pine beetle outbreak along the Front Range by the agencies involved. That decision was directed toward maximizing control opportunities within Designated Control Areas (DCA's). The proposed alternative is to bring more land into a managed condition that will meet the public desires for recreation, wildlife and scenic values in FY 1978. A companion objective is to minimize the adverse fuel situation created by the current drought and mountain pine beetle outbreak. Further information on the custodial and current direction alternatives are taken from the benefit/cost sections of the Environment Analysis Reports prepared by the Colorado State Forest Service and Arapaho and Roosevelt National Forests in FY 1976.

COSTS

Cost estimates for the selected alternative are those used in the proposed project (attached). The proposed project contains a $1.00/ac annual maintenance cost that will occur over the life of the project. This cost is expected to be borne by the land managers. Custodial costs are current direction costs less MPB and fuel management funding. Current direction costs were provided by the District Ranger, Forest Service, USDA and District Forester, Colorado State Forest Service, for the proposed project area.

[1] Averill, R. D. et. al. 1977. Guidelines for estimating the benefits of mountain pine beetle control projects. Technical Report R2-11, Review Draft Manuscript, 30 pp.

BENEFITS

The valuation of benefits is difficult when they involve non-monetary goods and services. Overlapping benefits are also difficult to separate from each other. For example, it would appear that a portion of the wildlife system value is applicable to the recreation system. No attempt has been made to more thoroughly separate RPA system benefits and it is assumed that these errors are nearly equally distributed between systems.

A discussion of those benefits which need additional explanation follows:

A. Residential Property

	Acreage	Residential Lots	Acres/Lot
Subdivisions	1,967	836	2.35
Settlements	25 *	83	0.3 *
Parcels	5,730 *	1,146	5.0 *
Totals	7,722	2,065	

* Estimated

Residential Acreage = 7,722 acres (44% private land)
Residential Lots = 2,065

Selling price of a residential lot with trees from data collected during a study, [2] "The Contribution of Trees to Mountain Residential Property Values" ranged from $4,500 to $17,000. However, a range more consistent with the proposed project area would be $10 - $12,500. Current value is near the upper limit due to the limited growth position in Boulder.

[2] Mehaffey, Jr., R. E. 1977. The Contribution of Trees to Mountain Residential Property Values. Colorado State Forest Service.

An estimated 65% of subdivision and settlement lots have trees as do 95% of the parcels. Total estimated number of residential lots with trees is 1,686. Estimated value of these residuential lots at $12,000 is $20,232,000.

A aforementioned study showed that approximately 15-25% of raw land residential lot value is attributable to trees. Twenty percent was used in the Benefit Cost determination for the alternatives of the vegetative management plan. In the INVEST III printout, property value protected is expressed as the difference in dollars saved in the current direction and proposed project alternatives.

B. Fire

The economic impact of fire is a very complex relation between many physical and economic factors. The major physical variables considered in this analysis were microclimate and fuel type. Average weather conditions were used to compare all alternatives. The economic factors were expressed as resource damage per acre and suppression costs per acre. This cost data was taken from the 260 acre Comforter mountain fire which occured in the project area in 1976.

Resource damage was $2,060 per acre and suppression costs was $468.70 per acre. The expected acreage lost per year was calculated using a simple linear probability model for occurance and expected fire behavior models [3] were used to estimate fire behavior. The results are shown below.

	Custodial Management	Current Direction	Proposed Project
Total Acres Expected	32,090	32,090	32,090
Annual Loss (Acres)	385	257	128
Annual Resource Damage ($)	793,846	529,230	264,615
Annual Suppression Costs ($)	180,506	120,337	60,169

[3] Albini, F. A. 1976. Estimating Wildfire Behavior and Effects. USDA, General Technical Report, INT-30, 92 pp.

In the INVEST III printout all damage and suppression costs were expressed in terms of dollars saved as a result of the current management and proposed project alternatives.

C. Wildlife

In the Colorado Front Range Vegetation Management Proposal it was conservatively estimated the deer herd would increase by 5,000. Assuming that 25 percent of these deer can be harvested annually. and that each hunter is in the field 3 days, and has a success ratio of 30 percent; the increased deer population would provide an additional 12,500 hunter days or an increase of 13 percent.

In 1973, Ross, Blood and Nobe [4] surveyed sportsmen expenditures for hunting and fishing in Colorado and found that deer hunters spent $85.13 per hunter day. This increased hunter recreation would generate $1,064,125 annually in the Colorado economy.

Colorado Front Range Vegetation Management Pilot Project - This project area is 34,300 acres which is 9.5 percent of "Big Game Unit 29."

Deer - hunter use in 1975, in Unit 29 was 1,260 days X .095 = 120 deer hunter days in the pilot project area. Assuming the 13 percent increase of the overall project the deer hunter increase would be 16 hunter days or $1,362. The increase would be captured at 20 percent annually to year 5 and remain at 100 percent to year 10.

Elk - increase for the pilot project is assumed to be the same as for deer. With 1,829 elk hunter days X .095 = 174 hunter days which would result in an annual increase of $1,617. This increase would be captured at the same rate as for deer.

Small Game - based on 1974 Colorado Harvest Report for Boulder County and 1973 expenditure data, hunting of blue grouse, rabbit, hare and squirrel would increase by 10 percent and result in an annual benefit of $1,262. This value would be captured at 25 percent for 4 years and at 100 percent to year 10.

Non-Consumptive Wildlife Use - based on the 1970 Boulder population over 18 years of age, and assuming 7.3 percent of the population would participate 38 days per individual (from 1970 National Hunting and Fishing Survey) the recreation use produced would be 245,100 days of

[4] Ross, Blood and Nobe. 1975. Survey of Sportsmen Expenditures for Hunting and Fishing in Colorado. Department of Economics, Colorado State University, Fort Collins, Colorado, 102 pp.

non-consumptive wildlife use. In the pilot project area the use would be 17,157 recreation days at $65.40/day from 1971 Study of Ten Southeastern States. Assuming the increase would be 5 percent there would be an annual increase of $56,103 in the pilot project area.

D. Timber

The wood product industry within the Front Range is poorly developed. Thus, the capability of industry to absorb the volume of wood proposed in this plan is assumed to be limited. Therefore, only stumpage value is assigned as the benefit to be gained. Stumpage for sawtimber is $15.00 MBF; roundwood $1.00 Cunit; Fuelwood $.50 Cord.

The following volumes will be available during the project:

Product	NFS Lands	S&PF Lands
Sawtimber	2.75 MMBF	6.25 MMBF
Roundwood	2,860 Cunits	2,440 Cunits
Fuelwood	11,800 Cords	16,200 Cords

We estimate an "allowable cut effect" will occur on the Forest as a whole which will be recognized in future management activities. This will amount to an estimated annual increase of 531 MBF on NFS lands and 435 MBF on S&P lands. Future demand on the vegetation for a variety of uses will require some type of regular harvest to maintain the health of the forest.

E. Congressional Inquiries (Savings in Administrative Time and Costs)

The outbreak of mountain pine beetle has stimulated a level of public inquiry above what the normal overhead and manpower costs and time are expected to handle. Inquiries over the normal were set at 100 for the custodial alternative, 20 in current direction and 0 in the proposed project. Writing and reviewing each inquiry was set at an average of 1 day for a GS-11/5 at $77.00 per day.

F. Recreation and Aesthetics

Recreation visitor day use was 136,000 in the project area in 1976. A complex interaction between recreation and the other benefits is present. The anticipated recreation benefits were set at $7,000 per year.

Aesthetics were prorated using the 1976 Arapaho and Roosevelt National Forests Mountain Pine Beetle EAR for the current and custodial alternatives. The annual benefit between years 2 and 10 was valued at $24,000. In the proposed project, recreation and aesthetics are 3 percent of the total benefits.

G. Losses Due to Mountain Pine Beetle

In the custodial and current management alternatives, it is assumed that the outbreak will collaspe by year seven throughout the area. The primary difference in losses between the 3 alternatives is due to the increased number of stands being placed under better growing conditions. The proposed alternative would place all ponderosa stands into a better growing condition in one year.

Losses to M.P.B.	Custodial Management	Current Direction	Proposed Project
Fed. Sawtimber/yr	30 MBF	16 MBF	< 1 MBF
Fed. Roundwood loss by year 10	11,862 MBF	5,383 MBF	0
S&P timber/yr	903 MBF	361 MBF	< 1 MBF

NATIONAL FOREST - BOULDER-LONGMONT PROJECT

UNIT - VEGETATION MANAGEMENT

ATTENTION - AVERILL & SONNEN

INVESTMENT ANALYSIS PROGRAM USFS - FAST VERSION

PROBLEM - CUSTODIAL MANAGEMENT

DOLLARS IN THOUSANDS	O.M.B. RATE .1000	OPT. INT. RATE .0638	RANKING RATE .1000

		VALUE	YEARS		TOTAL UNITS	FIRST YEAR TOTAL DOLLARS	$ DISCOUNTED AT 10.00 %	
		TYPE	BEGIN	END	PER YEAR	COST OR INCOME	COST	BENEFIT
1	04 030 MPB S.T. LOSS	2	1	7	.00	-.45	-2.41	.00
2	04 030 ROUNDWOOD LOSS (SUM)	1	0	10	.00	-177.93	-75.46	.00
3	04 030 TIMBER COSTS	2	1	10	.00	-.75	-5.07	.00
4	04 030 TIMBER SALES	2	1	10	.00	2.99	.00	18.37
5	01 070 RECREATION	2	1	10	.00	-4.03	-27.24	.00
6	01 070 RECREATION	2	1	10	.00	3.00	.00	18.43
7	02 080 WILDLIFE	2	1	10	.00	-.17	-1.15	.00
8	02 080 WILDLIFE	2	1	10	.00	.55	.00	3.38
9	05 090 SOIL & WATER MGT.	2	1	10	.00	-.01	-.07	.00
10	06 070 AESTHETICS LOST	2	1	10	.00	-11.19	-75.63	.00
11	06 170 CONG. INQUIRIES	2	1	10	.00	-2.75	-18.59	.00
12	06 170 GEN. FOR. LAND MANAGEMEN	2	1	10	.00	-4.99	-33.73	.00
13	06 170 GEN. FOR. LAND MANAGEMEN	2	1	10	.00	5.25	.00	32.26
14	04 404 COOR FOREST MGT.	2	1	10	.00	-13.55	-91.58	.00
						TOTALS =	-330.93	72.44

SUMMARY REPORT
LISTING OF COMBINED ITEMS
DISCOUNTED AT 10.00%
FOR PROBLEM CUSTODIAL MANAGEMENT

SEQ. NO.	COMBINATION NO.	RPA SYSTEM	COST	BENEFIT
	04	TIMBER	-174.52	18.37
	01	OUTDOOR RECREATION AND WILDERNESS	-27.24	18.43
	02	WILDLIFE AND FISH HABITAT	-1.15	3.38
	05	LANDS AND WATER	-.07	.00
	06	HUMAN AND COMMUNITY DEVELOPMENT	-127.95	32.26
		TOTALS=	-330.93	72.44

****
EVALUATION OF PROJECT OR PROGRAM
****

PERCENT USED	BENEFIT COST RATIO	$ NET PRESENT WORTH	$ ANNUAL EQUIVALENT VALUE OF N P W	YEARS PLANNED
O.M.B. RATE				
10.00	.2189	-258.48	-42.07	10
STD TEST RATE				
3.00	.2148	-367.64	-43.10	10
STD TEST RATE				
15.00	.2201	-209.65	-41.77	10
OPT.RATE				
6.38	.2171	-307.32	-42.51	10

LOSS

NATIONAL FOREST - VEGETATION MANAGEMENT

PROBLEM = CURRENT DIRECTION

	O.M.B. RATE	OPT. INT. RATE	RANKING RATE
FISCAL YEAR 77	.1000	.0638	.1000

		VALUE	YEARS		TOTAL UNITS	FIRST YEAR TOTAL DOLLARS	$ DISCOUNTED AT 10.00 %	
		TYPE	BEGIN	END	PER YEAR	COST OR INCOME	COST	BENEFIT
1	04 030 MPB S.T. LOSS	2	1	7	.00	-.24	-1.29	.00
2	04 030 ROUNDWOOD LOSS (SUM)	1	0	10	.00	-80.75	-34.25	.00
3	04 030 TIMBER COSTS	2	1	10	.00	-1.85	-12.50	.00
4	04 030 TIMBER SALES	2	1	10	.00	8.94	.00	54.93
5	01 070 RECREATION	2	1	10	.00	-5.03	-34.00	.00
6	01 070 RECREATION	2	1	10	.00	5.00	.00	30.72
7	02 080 WILDLIFE	2	1	10	.00	-.17	-1.15	.00
8	02 080 WILDLIFE	2	1	10	.00	.57	.00	3.50
9	05 090 SOIL & WATER MGT.	2	1	10	.00	-.01	-.07	.00
10	06 070 AESTHETICS LOST	2	1	10	.00	-7.83	-52.92	.00
11	06 170 CONG. INQUIRIES	2	1	10	.00	-.55	-3.72	.00
12	06 170 GEN. FOR. LAND MANAGEMEN	2	1	10	.00	-4.99	-33.73	.00
13	06 170 GEN. FOR. LAND MGT.	2	1	10	.00	5.75	.00	35.33
14	04 404 COOP FOREST MANAGEMENT	2	1	7	.00	-5.42	-29.03	.00
15	06 PROPERTY VALUE PROTECTED	2	1	10	.00	47.50	.00	291.87
16	05 102 F.F. SUPP. COST PREV.	2	1	10	.00	7.35	.00	45.16
17	05 102 F.F. DAMAGE PREVENTED	2	1	10	.00	30.69	.00	188.58
18	05 402 F.F. SUPP. COST PREV.	2	1	10	.00	12.51	.00	76.87
19	05 402 F.F. DAMAGE PREVENTED	2	1	10	.00	52.26	.00	321.12
20	05 115 F.F. FUELS MANAGEMENT	2	1	10	.00	-1.26	-8.52	.00
21	05 120 ROAD MAINTENANCE	2	1	10	.00	-.04	-.27	.00
22	05 413 FIDM & STATE APPROP. (INI	2	1	3	.00	-100.20	-274.10	.00
23	05 413 FIDM & STATE APPROP. (MT.	2	4	10	.00	-4.00	-16.09	.00
24	06 CONTRIBUTED COSTS (INITIAL)	2	1	3	.00	-39.43	-107.86	.00
25	06 CONTRIBUTED COSTS (MAINT.)	2	4	10	.00	-3.00	-12.07	.00
26	05 044 FIDM	2	1	3	.00	-23.10	-63.19	.00
27	05 044 FIDM	1	0	4	.00	-21.00	-15.78	.00
28	05 044 FIDM	1	0	5	.00	-18.90	-12.91	.00
29	05 044 FIDM	1	0	6	.00	-16.80	-10.43	.00
30	05 044 FIDM	1	0	7	.00	-14.70	-8.30	.00
31	05 044 FIDM	1	0	8	.00	-12.60	-6.47	.00
32	05 044 FIDM	1	0	9	.00	-10.50	-4.90	.00
						TOTALS =	-743.53	1048.08

SUMMARY REPORT
LISTING OF COMBINED ITEMS
DISCOUNTED AT 10.00%
FOR PROBLEM CURRENT DIRECTION

SEQ. NO. COMBINATION NO. RPA SYSTEM

04	TIMBER	-77.06	54.93
01	OUTDOOR RECREATION AND WILDERNESS	-34.00	30.72
02	WILDLIFE AND FISH HABITAT	-1.15	3.50
05	LANDS AND WATER	-421.02	631.72
06	HUMAN AND COMMUNITY DEVELOPMENT	-210.30	327.20
	TOTALS=	-743.53	1048.08

COST/BENEFIT ITEM DIFFERENCES FROM SPECIFIED E

NOTE- WHEN EITHER A COST OR BENEFIT ITEM OF THE ALTERNATIVE
IS COMPARED WITH THE BASE AND IS GREATER, THE DIFFERENCE
WILL SHOW AS A POSITIVE VALUE.
WHEN THE DIFFERENCE IS LESS, THE VALUE IS NEGATIVE.

PROBLEM-CURRENT DIRECTION COMPARED TO BASE

SEQ NO.	ITEM	DISCOUNTED AT10.00% COST	BENEFIT
1	04 030 MPB S.T. LOSS	-1.	
2	04 030 ROUNDWOOD LOSS (SUM)	-41.	
3	04 030 TIMBER COSTS	7.	
4	04 030 TIMBER SALES		37.
5	01 070 RECREATION	7.	
6	01 070 RECREATION		12.
8	02 080 WILDLIFE		0.
10	06 070 AESTHETICS LOST	-23.	
11	06 170 CONG. INQUIRIES	-15.	
13	06 170 GEN. FOR. LAND MGT.		3.
14	04 404 COOP FOREST MANAGEME	-60.	
15	06 PROPERTY VALUE PROTEC		292.
16	05 102 F.F. SUPP. COST PREV		45.
17	05 102 F.F. DAMAGE PREVENTE		189.
18	05 402 F.F. SUPP. COST PREV		77.
19	05 402 F.F. DAMAGE PREVENTE		321.
20	05 115 F.F. FUELS MANAGEMEN	9.	
21	05 120 ROAD MAINTENANCE	0.	
22	05 413 FIDM & STATE APPROP.	274.	
23	05 413 FIDM & STATE APPROP.	16.	
24	06 CONTRIBUTED COSTS (INITI	108.	
25	06 CONTRIBUTED COSTS (MAINT	12.	
26	05 044 FIDM	63.	
27	05 044 FIDM	16.	
28	05 044 FIDM	13.	
29	05 044 FIDM	10.	
30	05 044 FIDM	8.	
31	05 044 FIDM	6.	
32	05 044 FIDM	5.	
	DISCOUNTED NET CHANGE FROM BASE=	413.	976

CHANGE IN NPW $ 563.

****
EVALUATION OF PROJECT OR PROGRAM
****

	PERCENT USED	BENEFIT COST RATIO	$ NET PRESENT WORTH	$ ANNUAL EQUIVALENT VALUE OF N P W	YEARS PLANNED
O.M.B. RATE	10.00	1.4096	304.55	49.56	10
STD TEST RATE	3.00	1.6428	569.30	66.74	10
STD TEST RATE	15.00	1.2734	183.81	36.62	10
OPT.RATE	6.38	1.5235	423.74	58.61	10

INTERNAL RATE OF RETURN IS 28.66 PERCENT
******

NATIONAL FOREST - VEGETATION MANAGEMENT

PROBLEM - PROPOSED PROGRAM

DOLLARS IN THOUSANDS	O.M.B. RATE .1000	OPT. INT. RATE .0638	RANKING RATE .1000

			VALUE	YEARS		TOTAL UNITS	FIRST YEAR TOTAL DOLLARS	$ DISCOUNTED AT 10.00 %	
			TYPE	BEGIN	END	PER YEAR	COST OR INCOME	COST	BENEFIT
2	04	030 ROUNDWOOD LOSS (SUM)	1	0	10	.00	-.01	-.00	.00
3	04	030 TIMBER COSTS	1	0	1	.00	-542.65	-542.65	.00
4	04	030 ALLOW. CUT EFFECT	2	5	10	.00	3.72	.00	11.07
5	01	070 RECREATION	1	0	1	.00	-19.84	-19.84	.00
6	01	070 RECREATION	2	1	10	.00	7.00	.00	43.01
7	02	080 WILDLIFE	1	0	1	.00	-65.11	-65.11	.00
9	05	090 SOIL & WATER MGT.	1	0	1	.00	-16.62	-16.62	.00
10	06	070 AESTHETICS IMPROVED	2	2	10	.00	24.00	.00	125.65
14	04	404 COOP FOREST MANAGEMENT	1	0	1	.00	-13.60	-13.60	.00
33	05	102 F.F. SUPP. COST PREV.	2	1	10	.00	44.52	.00	273.56
34	05	102 F.F. DAMAGE PREVENTED	2	1	10	.00	195.81	.00	1203.17
35	05	115 F.F. FUELS MANAGEMENT	1	0	1	.00	-579.31	-579.31	.00
36	06	PROPERTY VALUE PROTECTED	2	1	10	.00	240.00	.00	1474.70
37	05	402 F.F.SUPP. COST PREV.	2	1	10	.00	75.81	.00	465.82
38	05	402 F.F.DAMAGE PREV.	2	1	10	.00	333.41	.00	2048.66
39	05	402 COOP F.F.CONTROL	1	0	1	.00	-785.31	-785.31	.00
40	04	413 GEN.FOR.ASSISTANCE	1	0	1	.00	-100.94	-100.94	.00
41	05	413 FIDM	1	0	1	.00	-404.32	-404.32	.00
42	06	800 NYACC	1	0	1	.00	384.70	.00	349.73
43	06	TITLE 6 CETA	1	0	1	.00	73.19	.00	66.54
44	06	LOCAL AGENCIES	1	0	1	.00	-51.94	-51.94	.00
45	06	PRIVATE CONTRIBUTED	1	0	1	.00	-248.27	-248.27	.00
46	04	030 SAWTIMBER SALES	1	0	1	.00	41.25	.00	37.50
47	04	030 ROUNDWOOD SALES	1	0	1	.00	2.86	.00	2.60
48	04	030 FUELWOOD SALES	1	0	1	.00	5.90	.00	5.36
49	04	404 SAWTIMBER SALES	1	0	1	.00	93.75	.00	85.23
50	04	404ROUNDWOOD SALES	1	0	1	.00	2.44	.00	2.22
51	04	404. FUELWOOD SALES	1	0	1	.00	8.10	.00	7.36
52	04	404 ALLOW. CUT EFFECT	2	5	10	.00	4.54	.00	13.51
53	02	080 DEER USER INCREASE	3	1	5	.00	.27	.00	2.88
54	02	080 DEER USER INCREASE	2	6	10	.00	1.36	.00	3.20
55	02	080 ELK USER INCREASE	3	1	5	.00	.32	.00	3.41
56	02	080 ELK USER INCREASE	2	6	10	.00	1.67	.00	3.93
57	02	080 NON.CON. WILDLIFE INCREA	3	1	4	.00	.32	.00	2.42
58	02	080 NON.CON. WILDLIFE INCREA	2	5	10	.00	1.26	.00	3.75
59	02	080 SMALL GAME USER INCREASE	2	1	10	.00	56.10	.00	344.71
60	05	STATE FUNDING	1	0	1	.00	-250.48	-250.48	.00
61	05	AG. CONS. PROGRAM	1	0	1	.00	-204.98	-204.98	.00
62	05	FUTURE MAINT. COST ALL LANDS	2	2	10	.00	-34.30	-197.53	.00
							TOTALS =	-3480.91	6579.96

SUMMARY REPORT
LISTING OF COMBINED ITEMS
DISCOUNTED AT 10.00%
FOR PROBLEM PROPOSED PROGRAM

SEQ. NO.	COMBINATION NO.	RPA SYSTEM	COST	BENEFIT
	04	TIMBER	-657.19	164.84
	01	OUTDOOR RECREATION AND WILDERNESS	-19.84	43.01
	02	WILDLIFE AND FISH HABITAT	-65.11	364.29
	05	LANDS AND WATER	-2438.55	3991.20
	06	HUMAN AND COMMUNITY DEVELOPMENT	-300.21	2016.61
		TOTALS=	-3480.91	6579.96

COST/BENEFIT ITEM DIFFERENCES FROM SPECIFIED E

NOTE- WHEN EITHER A COST OR BENEFIT ITEM OF THE ALTERNATIVE
IS COMPARED WITH THE BASE AND IS GREATER, THE DIFFERENCE
WILL SHOW AS A POSITIVE VALUE.
WHEN THE DIFFERENCE IS LESS, THE VALUE IS NEGATIVE.

PROBLEM-PROPOSED PROGRAM COMPARED TO BASE

SEQ NO.	ITEM	DISCOUNTED AT 10.00% COST	BENEFIT
1	04 030 MPB S.T. LOS	-2.	
2	04 030 ROUNDWOOD LOSS (SUM)	-75.	
3	04 030 TIMBER COSTS	538.	
4	04 030 ALLOW. CUT EFFECT		-7.
5	01 070 RECREATION	-7.	
6	01 070 RECREATION		25.
7	02 080 WILDLIFE	64.	
8	02 080 WILDLIFE		-3.
9	05 090 SOIL & WATER MGT.	17.	
10	06 070 AESTHETICS IMPROVED		201.
11	06 170 CONG. INQUIR	-19.	
12	06 170 GEN. FOR. LA	-34.	
13	06 170 GEN. FOR. LA		-32.
14	04 404 COOP FOREST MANAGEME	-78.	
33	05 102 F.F. SUPP. COST PREV		274.
34	05 102 F.F. DAMAGE PREVENTE		1203.
35	05 115 F.F. FUELS MANAGEMEN	579.	
36	06 PROPERTY VALUE PROTECTED		1475.
37	05 402 F.F.SUPP. COST PREV.		466.
38	05 402 F.F.DAMAGE PREV.		2049.
39	05 402 COOP F.F.CONTROL	785.	
40	04 413 GEN.FOR.ASSISTANCE	101.	
41	05 413 FIDM	404.	
42	06 800 NYACC		350.
43	06 TITLE 6 CETA		67.

44	06	LOCAL AGENCIES	52.		
45	06	PRIVATE CONTRIBUTED	248.		
46	04	030 SAWTIMBER SALES		38.	
47	04	030 ROUNDWOOD SALES		3.	
48	04	030 FUELWOOD SALES		5.	
49	04	404 SAWTIMBER SALES		85.	
50	04	404ROUNDWOOD SALES		2.	
51	04	404 FUELWOOD SALES		7.	
52	04	404 ALLOW. CUT EFFECT		14.	
53	02	080 DEER USER INCREASE		3.	
54	02	080 DEER USER INCREASE		3.	
55	02	080 ELK USER INCREASE		3.	
56	02	080 ELK USER INCREASE		4.	
57	02	080 NON.CON. WILDLIFE IN		2.	
58	02	080 NON.CON. WILDLIFE IN		4.	
59	02	080 SMALL GAME USER INCR		345.	
60	05	STATE FUNDING	250.		
61	05	AG. CONS. PROGRAM	205.		
62	05	FUTURE MAINT. COST ALL LA	198.		
		DISCOUNTED NET CHANGE FROM BASE=	3226.	6583.	

CHANGE IN NPW $ 3358.

****
EVALUATION OF PROJECT OR PROGRAM
****

	PERCENT USED	BENEFIT COST RATIO	$ NET PRESENT WORTH	$ ANNUAL EQUIVALENT VALUE OF N P W	YEARS PLANNED
O.M.B. RATE	10.00	1.8903	3099.05	504.36	10
STD TEST RATE	3.00	2.5267	5420.30	635.43	10
STD TEST RATE	15.00	1.5800	1999.17	398.34	10
OPT.RATE	6.38	2.1830	4155.75	574.84	10

INTERNAL RATE OF RETURN IS 31.23 PERCENT
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PROJECTS RANKED BY THEIR INTERNAL RATE OF RETURN

PROBLEM TITLE	NPW AT 10.00%	IRR	DOLLARS-NONDISCOUNTED COST 1ST YR	2ND YR	3RD YR	4TH YR	5TH YR	ACCUMUL 1ST 5YR COST
PROPOSED PROGRAM	3099.05	31.23	3283.37	34.30	34.30	34.30	34.30	3420.57
CURRENT DIRECTION	304.55	28.66	190.12	190.12	190.12	55.39	53.29	679.04
CUSTODIAL MANAGEMENT	-258.48	.00	37.89	37.89	37.89	37.89	37.89	189.45

PROJECTS RANKED BY THEIR NET PRESENT WORTHS AT 10.00 PERCENT

PROBLEM TITLE	NPW AT 10.00%	IRR	COST 1ST YR	DOLLARS-NONDISCOUNTED 2ND YR	3RD YR	4TH YR	5TH YR	ACCUMUL 1ST 5YR COST
PROPOSED PROGRAM	3099.05	31.23	3283.37	34.30	34.30	34.30	34.30	3420.57
CURRENT DIRECTION	304.55	28.66	190.12	190.12	190.12	55.39	53.29	679.04
CUSTODIAL MANAGEMENT	-258.48	.00	37.89	37.89	37.89	37.89	37.89	189.45

#FIN